CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

August 6, 2002

Mr. Seyed Sadredin
Director of Permit Services
San Joaquin Valley Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, CA 93726

01-AFC-20

CALIF ENERGY COMMISSION

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Re: Comments on Preliminary Determination of Compliance (PDOC)
APCD Project Number: C1011324
– Avenal Energy Project (01-AFC-20)

Dear Mr. Sadredin:

The California Energy Commission staff has reviewed the PDOC for the Avenal Energy project received on July 10, 2002. Staff offers the following comments for your consideration.

BACT FOR GAS TURBINE/DUCT BURNER

Energy Commission staff concurs with the District that Best Available Control Technology (BACT) would be satisfied for combustion turbine emissions of NOx at 2.0 ppmv @ 15% O_2 on a 1-hour basis (PDOC, p. 37). Staff notes that, contrary to the PDOC (Appendix p. F-3), as of the end of July, the project applicant had not committed to meeting 2.0 ppm NOx on a 1-hour basis, but rather had proposed to meet that level only on an annual average basis. Staff assumes that the applicant will comment on the BACT determination for NOx if it disagrees with the District.

The District's BACT determination does not take into account recent recommendations by the U.S. Environmental Protection Agency on other CEC siting cases for levels of CO and ammonia slip that should be concurrently achievable with the 2.0 ppm NOx level. Current U.S. EPA recommendations indicate that while using an oxidation catalyst, as proposed by the applicant, a CO level of 2.0 ppmv @ 15% O_2 should be considered technologically feasible. Additionally, although ammonia slip is intrinsic to operation of the SCR system, because under certain circumstances ammonia can be a precursor to ambient PM_{10} and $PM_{2.5}$, staff suggests that the District set a performance standard for ammonia slip in conjunction with the NOx limit. Guidance from CARB (Guidance for Power Plant Siting and Best Available Control Technology, September 1999) indicates that an ammonia slip limit of 5 ppm should be achievable. Staff anticipates that U.S. EPA will provide similar comments on the BACT determination of the PDOC.

SOX:PM_{10} INTERPOLLUTANT OFFSET RATIO ANALYSIS

Energy Commission staff is concerned that the interpollutant trading ratio (PDOC, Attachment N) for conversion of credits from SOx-to-PM_{10} may mischaracterize the benefit provided by reductions of SOx. The interpollutant trading ratio is based on a dual-purpose

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assumption that ambient air quality in Kings County is only affected by the emission inventory in Kings County and that the project's emission reductions and increases would affect only the emission inventory for Kings County. The assumption needs to be reconsidered because air quality problems in Kings County are directly affected by emissions occurring elsewhere in the basin and project-related emission reductions would come from sources throughout the basin.

Energy Commission staff concurs that reducing SOx emissions in the basin will help to reduce PM_{10} impacts from direct combustion. Staff points out, however, that much (20 to 25%) more SOx is emitted in the basin than direct combustion PM_{10}. This is in marked contrast to the inventory subset in Kings County alone, where less SOx is emitted than direct combustion PM_{10}. This means that to provide the anticipated PM_{10} benefits, a greater quantity of SOx emissions in the basin may need to be reduced. For these reasons, staff encourages the District to recalculate the interpollutant ratio using a basin-wide emission inventory.

PRESENTATION OF PROJECT DESCRIPTION AND CONDITIONS

The Equipment Listing (PDOC, p. 6) notes the firing capacity of the duct burners in each combustion turbine/HRSG. Energy Commission staff is concerned that permit conditions related to these units could be overlooked if these units are not explicitly included in the equipment description throughout the PDOC (especially maintenance of records of duct burner operation and fuel consumption rates, Condition 54, Attachment p. A-8). Please ensure that the duct burners are explicitly included with the equipment descriptions in Attachment A of the Determination of Compliance.

The firing capacity of each duct burner is described as 480 MMBtu/hr (PDOC, p.6) although the maximum fuel firing rate presented by the applicant has been 453 MMBtu/hr (HHV) (AFC Appendix Table 6.2-1.1). Energy Commission staff is unaware of any proposal to increase the size of the duct burners. As mentioned above, please ensure that a requirement is in place to monitor and maintain a record of the duct burner fuel consumption rates.

The diameter of the combustion turbine/HRSG stack shown on PDOC p. 3 is a typographical error. The applicant confirmed that the stack diameter should be 18 feet in the response to staff's Data Request #137, April 25, 2002. This value was used in the applicant's modeling analysis.

The engine for powering the fire pump was described by the applicant as having a capacity of 370 bhp (AFC Appendix Table 6.2-1.6). Energy Commission staff is unaware of any proposal to reduce the size of the engine to 300 hp, as shown on PDOC p. 5.

Energy Commission staff is unaware of any requests by the applicant for special startup and shutdown conditions affecting the auxiliary boiler (PDOC, p. 16). Staff has not considered boiler startup conditions in any aspect of our analysis. If special allowances for startup emissions are necessary, then Condition 13 for this unit (PDOC, Attachment p. A-29) may need to be revised to allow the additional startup emissions. In its present form,

the emission limits are based on emissions that would occur during normal operation of the boiler.

Demonstrating compliance with PM_{10} emission limits for the cooling towers depends on knowledge of the water recirculation rate (PDOC, Attachment p. A-20). Please ensure that a requirement is in place to monitor and maintain a record of water circulation rates for each cooling tower.

If you have any questions, please contact Matthew Layton of my staff at (916) 654-3868. Thank you for the opportunity to comment on the Avenal Energy Project Preliminary Determination of Compliance.

Sincerely,

TERRENCE O'BRIEN, Deputy Director
Systems Assessment & Facilities Siting Division

cc: Robert Cochran, Project Manager, Duke Energy North America
Jane Luckhardt, Counsel to Avenal Energy
Mark Sims, U.S. EPA, Region IX
Mike Tollstrup, CARB
Docket file (01-AFC-20)